WHAT IS CLAIMED IS:

1. Material delivery system for miniature structures fabrication, comprising:

a substrate,

a material carrier element having a deposition layer disposed thereon and displaceable with respect to said substrate, said deposition layer containing at least one depositable material,

an energy beam directed towards said material carrier element, and

control means operatively coupled to said energy beam and said material carrier element for changing relative position between said material carrier element and said energy beam, thereby exposing respective areas of said deposition layer to said energy beam in a patterned fashion, said at least one depositable material being ablated from said respective areas of said deposition layer upon exposure to said energy beam, transferring to said substrate for depositing thereon at regions thereof corresponding to said respective areas of said deposition layer on said material carrier element.

2. The material delivery system of Claim 1, wherein said material carrier element further includes:

a backing element supporting said deposition layer thereon.

3. The material delivery system of Claim 2, wherein said backing element is chosen from the group comprising a tape, a ribbon, a disc, and a pad.

4. The material delivery system of Claim 1, wherein said material carrier element is maintained in predetermined spaced relationship with regard to said substrate.

5. The material delivery system of Claim 4, wherein a distance between said material carrier element and said substrate does not exceed 25 μm.

6. The material delivery system of Claim 1, wherein said control means scan said energy beam over said material carrier element.

7. The material deliver system of Claim 1, wherein said control means manipulates said material carrier element with respect to said energy beam.

8. The material delivery system of Claim 1, wherein said deposition layer of said material carrier element includes a plurality of distinct depositable materials disposed at predetermined zones on said material carrier element.

9. The material delivery system of Claim 8, wherein said control means align said energy beam with a respective one of said predetermined zones for depositing of a required depositable material contained in said respective zone.

10. The material delivery system of Claim 1, wherein said control means control a size of cross-section of said energy beam.

11. The delivery system of Claim 1, wherein said control means control a shape of cross-section of said energy beam.

12. The material delivery system of Claim 1, wherein said energy beam includes a laser beam.

13. The material delivery system of Claim 12, wherein said laser beam includes an ultraviolet laser beam.

14. The material delivery system of Claim 1, wherein said energy beam includes an ion beam.

15. The material delivery system of Claim 1, wherein said energy beam includes an electron beam.

16. The material delivery system of Claim 13, wherein said material carrier element is transparent to the ultraviolet radiation.

17. The material delivery system of Claim 1, wherein said control means operates said material delivery system in either of direct write mode of operation and micromachining mode of operation,

said material carrier element being positioned in said direct write mode of operation in interception with said energy beam, and

said material carrier element being displaced in said micromachining mode of operation away from intercepting with said energy beam, thus allowing a direct access for said energy beam to said substrate for ablating said substrate in a patterned fashion.

18. The material delivery system of Claim 17, wherein in said micromachining mode of operation, a fluence of said energetic beam is at least $1J/CM^2$ for ablating said substrate in said patterned fashion.

19. The material delivery system of Claim 4, further comprising a substrate-holding unit supporting said substrate in substantially parallel relationship to said material carrier element.

20. The material delivery system of Claim 1, wherein said material carrier element includes:

a disc material carrier element, said material delivery system further including an air table having a plurality of orifices and a gas supply means forcing said gas through said orifices, whereby a gas cushion layer is created above said air table, said disc material carrier element being supported upon said gas cushion layer in rotational relationship therewith about an axis of rotation extending through the center of said disc material carrier element.

21. The material delivery system of Claim 20, wherein said disc material carrier element is rotated at a rate determined by said energy beam repetition rate and a distance of said energy beam from said axis of rotation for arranging said respective areas of said deposition layer exposed to said energy beam in a substantially close-packed manner.

22. The material delivery system of Claim 20, wherein said disc material carrier element is slidably displaceable substantially in parallel with respect to said substrate and independently thereof.

23. The material delivery system of Claim 20, wherein said substrate is independently displaceable substantially in parallel relation with respect to said disc material carrier element.

24. The material delivery system of Claim 1, wherein said control means further includes pulse-position synchronization means for coordination between events of exposure of said deposition layer to said energy beam and the relative disposition of said material carrier element, said substrate and said source of energy.

25. The material delivery system of Claim 8, wherein said predetermined zones of said plurality of materials of said deposition layer are arranged in multiple annular manner.

26. The material delivery system of Claim 1, wherein said material carrier element includes a tape material carrier element, said system further includes:

a take-up reel and a supply reel supporting said tape material carrier element at two opposing ends thereof in a lengthwise slidable relationship with respect to said substrate, and

a tape guide unit disposed between said take-up reel and said supply reel and maintaining said tape material carrier element in predetermined relative disposition with respect to said substrate.

27. The material delivery system of Claim 26, further including:

an actuator block operatively coupled to said tape guide unit for stepping said tape material carrier element in a direction substantially normal to said tape material carrier element travel and in parallel to said substrate forming a deposition layer in multiple parallel tracks fashion.

28. The material delivery system of Claim 26, wherein said lengthwise slidable motion of said tape material carrier element with respect to said substrate is a bidirectional motion.

29. The material delivery system of Claim 27, wherein each said stepping of said tape material carrier element in the multiple parallel "tracks" fashion is carried out after a full length of said tape material element has passed in a predetermined direction of the lengthwise motion thereof.

30. The material delivery system of Claim 27, wherein each of said parallel "tracks" contains a respective one of a plurality of depositable materials.